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PRIORITY APPLICATION

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Application device**Description**

5 The invention relates to a device for the application of at least two liquid to pasty application media to one or both sides of a moving surface, having a curtain applicator for applying the application media, the curtain applicator discharging the application media onto the moving surface as curtains moving substantially under the force of gravity, and the surface in the case of direct application being the surface of a material web, in particular of paper or board, and in the case of indirect application being 15 the surface of a transfer element, for example an applicator roll, which transfers the application media to the surface of the material web.

Such curtain applicators, with which a plurality of 20 application media can be applied, are generally known from the prior art. In these known curtain applicators, the application media are collected together by a tray. The tray is arranged between the curtain applicator and the moving surface, so that it 25 is used when starting up or stopping the curtain applicator, or for producing uncoated edges on the moving surface. Since the application media are collected together by the tray, they mix in the tray. Therefore, the expensive application media can no 30 longer be used for further coating. Separation of the application media from one another can be implemented only in a very complicated manner and is thus expensive. The mixed application media therefore have to be disposed of, as a result of which further high 35 costs arise.

The object of the invention is to improve a device of the type mentioned at the beginning to the effect that

the application media can in future in each case be used again after being collected and no longer have to be disposed of.

- 5 The invention achieves the set object by means of a curtain applicator of the type mentioned at the beginning in which, according to the invention, a collecting device for the separate collection of each application medium is provided between the curtain applicator and the material web, it being possible for the curtain applicator and the collecting device to be moved relative to each other. Since the collecting device collects the various application media separately, these can no longer mix. They can therefore 10 be used again for a further coating operation and no longer have to be disposed of. As a result, both the high procurement costs for the application media are 15 reduced and the disposal costs are saved.
- 20 A discharge device can be arranged on the collecting device. The application media collected can then be led away from the collecting device in order to be available again for the coating operation.
- 25 In order to be able to pass the application media on from the collecting device to the discharge device, the collecting device can be equipped with discharge openings to pass on the application media to the discharge device.
- 30 If the collecting device has inclines arranged above the discharge openings, the application media can be led to the discharge openings via the inclines.
- 35 In order that the application media can be collected separately by the collecting device, the collecting device can be subdivided into a plurality of mutually

adjacent sections, each of the sections holding only one application medium.

The mutually adjacent sections of the collecting device
5 can be separated from one another by a separating element. This ensures that the various application media do not mix with one another.

The discharge openings in one section are adjacent to
10 the inclines on the adjacent section. Then, the application medium picked up by one of the sections can flow off into the discharge openings of this section and flow under the inclines of the adjacent section adjacent to the discharge openings, in order to be fed
15 to the discharge device. In this way, the inclines fulfill a further function in that, by means of said inclines, various application media can cross without the crossing application media mixing with one another.

20 In order to lead the application media coming from the collecting device away separately from one another, the discharge device can have a discharge plate, at the end of which there is arranged a separate drainage channel for each application medium.

25 In order that the various application media cannot mix with one another on the discharge plate, the discharge plate can have at least one separate channel for each application medium.

30 The channels of the discharge plate can bridge at least one of the drainage channels located beside one another at the end of the discharge plate. Then, one of the application media, which is carried in the bridging
35 channel of the discharge plate, crosses at least one of the other application media at the transition from the discharge plate to the drainage channel. As a result

of this crossing, mixing of the two application media is reliably ruled out.

In order to rule out mixing of the application media on 5 the discharge plate reliably, it is advantageous if the channels are separated from one another by a metal sheet.

The discharge plate can have a gradient, in order to be 10 able to carry away the application media as quickly as possible. A satisfactory discharge flow is achieved with a gradient of at least five degrees.

The application media can preferably be carried away to 15 the side on which the drives are placed. Then, from the other side, on which an operator's desk is located, the device can be monitored freely by the operating personnel of the operator's desk. In principle, however, the application media can be carried away on 20 both sides of the device.

The collecting device and the discharge device can be formed in one piece. As a result, the entire unit comprising collecting device and discharge device 25 becomes very dimensionally stable, so that reliable discharge of the application media is provided.

In another embodiment, however, it is also possible for the collecting device and the discharge device to be 30 separate components. Then, only the collecting device need be removed in order to begin or end the coating operation. The discharge device and discharge hoses connected to the latter can then therefore remain in place, so that overall a smaller mass has to be moved. 35 In this case, only a relatively small drive is required for the collecting device. In addition, the collecting device can be moved more quickly under the curtain or

moved away under the curtain if the mass to be moved is smaller.

The collecting device can have two sections which can
5 be moved in opposite directions in the longitudinal
direction of the material web. Minimal mixing of the
application media when the coating operation is started
or ended is then ruled out absolutely. However,
minimal mixing of the application media occurs if the
10 sections are moved in the same direction at the start
or at the end of the coating operation.

In a particular embodiment, the separating element
arranged between the sections can have a deflection
15 device for deflecting the application media into the
various sections. Then, at the start or at the end of
the coating operation, minimal mixing of the
application media is ruled out reliably, since the
deflection device deflects the respective application
20 medium into the section provided for the purpose as the
collecting device is moved. The deflection device can
advantageously be pivoted, so that it can be pivoted
appropriately on the basis of the direction of movement
and the movement travel covered, in order to conduct
25 the application medium optimally into the section
provided for the purpose.

If a lower collecting device is provided under the
material web, the application media can also be
30 collected in the event of a break in the material web.
Since the movable collecting device cannot be moved
under the curtain quickly enough in the event of a
break in the material web, the lower collecting device
is particularly advantageous.

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In a development of the invention, the application
media can likewise be collected separately by the lower
collecting device.

In one preferred embodiment, the lower collecting device has a separate channel for each application medium, in order to be able to collect the application media separately.

In order to rule out undesired mixing of the application media reliably, the channels can be separated from one another, for example by separating elements.

In the following, exemplary embodiments of the device according to the invention will be explained in more detail by using the appended drawing, in which, in detail:

fig. 1 shows a schematic view of the device according to the invention;

fig. 2 shows a perspective view of a curtain applicator having a discharge device.

Fig. 1 shows a device 10 for applying two application media forming a curtain 11 and 12. The application media are applied to a material web 102 - here in a direct manner - by means of a curtain applicator 13 extending transversely over the material web 102 to be coated. Under the curtains 11 and 12 there is arranged a collecting device 16 which has two sections 14 and 15 and, like the applicator 13, likewise extends in the transverse direction Q. The collecting device 16 collects the application media forming the curtains 11 and 12 separately with the sections 14 and 15. Since the collecting device 16 collects each application medium separately, the application media cannot mix. The collected application media pass from the collecting device 16 to a discharge device 17 extending in the longitudinal direction of the material web 102.

The discharge device 17 carries the collected application media away, in order that the latter can be used again for the further coating operation. The discharge device 17 has a discharge plate 18, at the 5 end of which there are arranged separate drainage channels 19 and 100 for each application medium. In order to be able to carry away the application media as quickly as possible, the discharge plate 18 has a gradient.

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At the start or at the end of a coating operation, the collecting device 16 arranged above the material web 102 can be moved in the longitudinal direction of the material web 102. In a further embodiment, it is also 15 possible for the collecting device 16 and the discharge device 17 to be formed in one piece. The collecting device 16 and the discharge device 17 can then be moved together. In another embodiment, the curtain applicator 13 can be moved along the material web 102, 20 so that the collecting device 16 and the discharge device 17 do not have to be moved at the start or at the end of the coating operation.

Under the material web 102 there is arranged a lower 25 collecting device 101. The lower collecting device 101 collects the application media following a break in the material web 102. Using the lower collecting device 101, a plurality of application media can preferably likewise be collected separately. For this purpose, 30 the lower collecting device 101 can be equipped with a separate channel for each application medium.

Fig. 2 shows a specific embodiment of a collecting device 20 and a discharge device 21. An application 35 medium 22, illustrated dotted, and an application medium 23, illustrated dashed, fall from a curtain applicator 204 into the collecting device 20 having two sections 24 and 25 arranged one after the other in the

running direction of the material web. The sections 24 and 25 have a separating element 28 in order to prevent mixing of the application media 22 and 23. In addition, the sections 24 and 25 are provided with 5 discharge openings 26. By means of the discharge openings 26, the application media 22 and 23 can be passed on to the discharge device 21. The sections 24 and 25 are equipped with inclines 27. The inclines 27 pass on the application media 22 and 23 to the 10 discharge openings 26. In addition, the application medium 22 which falls into the section 24 can flow through to the discharge device 21 under the inclines 27 of the adjacent section 25. The inclines 27 thus fulfill a further function, in that they permit the 15 application media 22 and 23 to cross without the crossing application media 22 and 23 mixing with each other. Instead of the inclines, there can of course also be a curved shape.

20 The discharge device 21 has a discharge plate 201. The discharge plate 201 is provided with channels 29, in which the application medium 22 runs away, and with channels 200, in which the application medium 23 runs away. Thus, each of the application media 22 and 23 25 can be carried away separately. At the end of the discharge plate 201 there are provided drainage channels 202 and 203, in which the application media 22 and 23 are carried away separately.

30 The channels 200, which run in the running direction L of the material web 102, bridge the drainage channel 202 extending in the transverse direction Q. Thus, the application medium 23 crosses the application medium 22 at the transition from the discharge plate 201 to the 35 drainage channel 203. As a result of this crossing, mixing of the two application media is reliably ruled out.

The drainage channels 202 and 203 carry the application media 22 and 23 away transversely with respect to the longitudinal direction of the material web 102. Discharge hoses 205 (here only indicated in figure 3), 5 through which the application media 22 and 23 are supplied to a storage container, can be connected to the drainage channels 202 and 203.

Moreover, figure 3 shows a device 10 in which the 10 drainage channels 19, 100, 202, 203, seen in the transverse direction of the device 10, are arranged beside one another. Each of these drainage channels 19, 100, 202, 203, separately from one another, picks up the application medium 22, 23 collected by the 15 respective section 14, 15, 24, 25 of the collecting device 16, 20 and passed on to the discharge plates 18 and 201, respectively, from where it is discharged to the outside of the device 10.

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List of designations

10	Device
11, 12	Curtain
13, 204	Curtain applicator
102	Material web
14, 15, 24, 25	Section
16, 20	Collecting device
17, 21	Discharge device
18, 201	Discharge plate
19, 100, 202, 203	Drainage channel
101	Lower collecting device
22, 23	Application medium
26	Discharge opening
27	Incline
29, 200	Channel
L	Longitudinal direction
Q	Transverse direction